



**ENVIRONMENTAL • GEOTECHNICAL  
BUILDING SCIENCES • MATERIALS TESTING**

**CLOSURE PLAN  
MODIFICATION NO. 1**

**IPL PETERSBURG GENERATING STATION  
TYPE III RESTRICTED WASTE LANDFILL**

INDIANAPOLIS POWER & LIGHT COMPANY  
PETERSBURG GENERATING STATION  
6925 NORTH STATE ROAD 57  
PETERSBURG, INDIANA 47567

ATC PROJECT NO. 170LF00274

NOVEMBER 22, 2016

PREPARED FOR:

INDIANAPOLIS POWER & LIGHT COMPANY  
6925 NORTH STATE ROAD 57  
PETERSBURG, INDIANA 47567-0436

ATTENTION: MR. ERWIN A. LEIDOLF, SENIOR SCIENTIST



November 22, 2016

Mr. Erwin A. Leidolf  
Senior Scientist  
Indianapolis Power & Light Company  
Petersburg Generating Station  
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**Re: CCR Closure Plan – Modification No. 1**  
IPL Petersburg Generating Station  
Type III Restricted Waste Landfill  
Petersburg, Indiana  
ATC Project No. 170LF00274

Dear Mr. Leidolf:

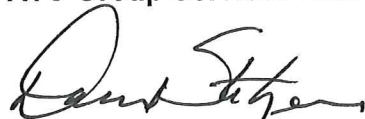
In accordance with your request, the enclosed CCR Closure Plan for the IPL Petersburg Generating Station Type III Restricted Waste Landfill has been modified to clarify the final cover requirements related to the footprint of the original landfill permitted by the Indiana Department of Environmental Management (IDEM) in 1982. Contained herein is a copy of the report which summarizes the compliance of the landfill closure plan with requirements of 40 C.F.R. Part 257, Subpart D.

A summary of the landfill final cover system, engineering design measures, narrative of closure activities, an approximate timeline for closure, and engineering certification are included with this report.

We appreciate the opportunity to assist you with this project. If you have any questions concerning information contained in this report, please do not hesitate to call either of the undersigned at 317.849.4990.

Sincerely,

**ATC Group Services LLC**

  
David Stelzer, Ph.D., P.E.  
Senior Project Engineer

  
Donald L. Bryenton, P.E.  
Principal Engineer

**CCR CLOSURE PLAN  
MODIFICATION NO. 1**



**INDIANAPOLIS POWER & LIGHT COMPANY  
PETERSBURG GENERATING STATION  
TYPE III RESTRICTED WASTE LANDFILL**

**NOVEMBER 22, 2016**

**PREPARED FOR:  
INDIANAPOLIS POWER & LIGHT COMPANY**

**PREPARED BY:  
ATC GROUP SERVICES LLC**

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# 1 INTRODUCTION

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Under 40 C.F.R. § 257.102(b), the owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit consistent with recognized and generally accepted good engineering practices at any point during the active life of the CCR unit. The Closure Plan outlined below is provided to meet this requirement.

## 1.1 PURPOSE

The Closure Plan for IPL Petersburg Type III Restricted Waste Landfill is intended to satisfy requirements set forth by the CCR Rule. In accordance with 40 C.F.R. § 257.102(d)(1), the landfill will be closed in a manner that will:

- (i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquid into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;
- (ii) Preclude the probability of future impoundment of water, sediment, or slurry;
- (iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;
- (iv) Minimize the need for further maintenance of the CCR unit; and
- (v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

## 1.2 FACILITY & SITE DESCRIPTIONS

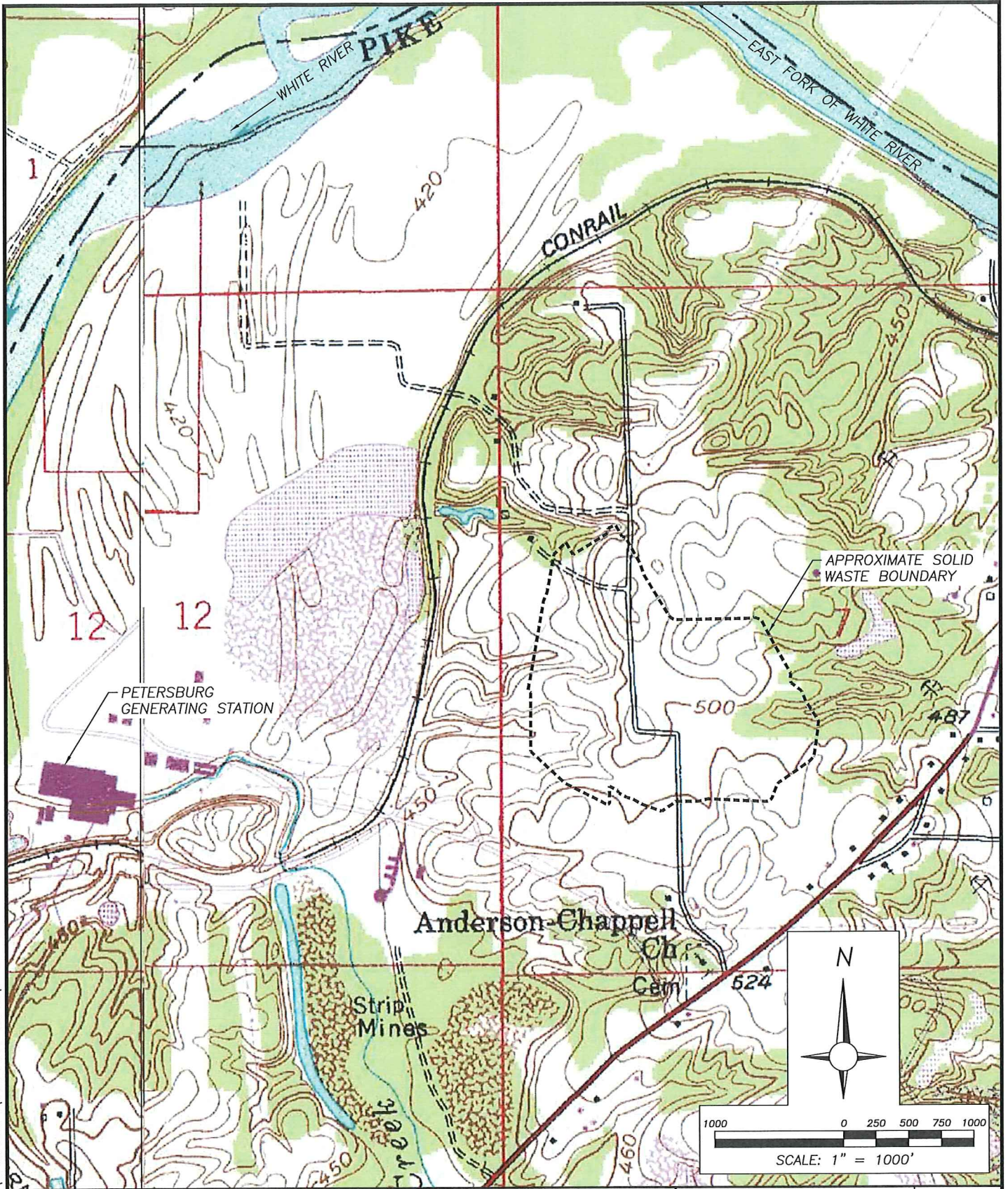
The IPL Petersburg Generating Station Type III Restricted Waste (RWS) Landfill (See Figure 1) is located about four (4) miles north of the City of Petersburg in Pike County, Indiana west of State Road 57. The Landfill encompasses a total area of approximately 123.7 acres inside the Solid Waste Boundary. Approximately 80.1 acres of the current landfill were permitted by the Indiana Department of Environmental Management (IDEM) in 1982 while the remaining 43.6 acres were permitted as an expansion to the landfill in 1996. To date, none of the expansion area has been constructed.

A 33.8 acre portion of the original landfill has already received closure certification from IDEM. The Petersburg Type III RWS Landfill operates under IDEM Permit Number 63-2.

## 1.3 LANDFILL NAME

The CCR unit name is IPL Petersburg Generating Station Type III Restricted Waste (RWS) Landfill.

H:\2016\PL\PETERSBURG\170LF00274\CCR POST CLOSE\174LF00274-PGS-LANDFILL LIMITS.DWG, SITE



**VICINITY MAP**

IPL PETERSBURG GENERATING STATION  
 TYPE III RESTRICTED WASTE LANDFILL  
 PETERSBURG, INDIANA

Project Number: 170LF00274		Drm. By: WS
Drawing File: SEE LOWER LEFT		Ckd. By: CD
Date: 9/16	Scale: AS SHOWN	App'd By:



Figure:  
**1**

## 2 PLANNED CLOSURE ACTIVITIES

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The CCR unit will be closed in accordance with 40 C.F.R. § 257.102(d). In general, the perimeter slopes of the landfill will be graded with 3H:1V slopes while the top of the landfill will have a typical slope of 2 percent. After grading work is complete, CCR material will be covered with materials specified in the Final Cover System. Proposed closure activities are summarized below:

- Survey and final grading
- Cover Placement
- Drainage Structure Installation
- Seeding
- Certification of Closure

Upon final closure of the landfill a closure certification will be prepare a notification of closure in accordance with 40 C.F.R. § 257.102(h).

## 3 DESCRIPTION OF FINAL COVER SYSTEM

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Closure of the CCR Unit will be accomplished by leaving CCR in place. The final cover system will meet the following performance standards of 40 C.F.R. § 257.102(d)(3)(i):

- (A) The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than  $1 \times 10^{-5}$  cm/sec, whichever is less.
- (B) The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.
- (C) The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
- (D) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

Approximately 33.8 acres of the original landfill area have already received final closure certification from IDEM. The IDEM approved final cover system for the remaining 46.3 acre area within the original landfill boundary does not specify a maximum hydraulic conductivity for either the final cover soil layer or the base of the landfill. Therefore, as required by §257.102 (d)(3)(i)(A), the final cover system installed over the portion of the original landfill footprint that has not already received partial closure certification will be closed using a minimum of 18 inches of compacted soil with a permeability equal to or less than  $1 \times 10^{-5}$  cm/sec. The final cover system in this area will also include a minimum of six inches of earthen material that is capable of sustaining native plan growth. The final cover system for the 43.6 acre expansion area will meet the requirements of §257.102 (d)(3).

Construction quality assurance measures will be completed to ensure measures are taken to confirm that the final cover soil installation is constructed as designed. At the time final closure is completed,

a qualified Professional Engineer will certify that the final cover system meets the requirements of §257.102 (d)(3).

## 4 ESTIMATED MAXIMUM INVENTORY OF CCR

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According to the latest Permit Renewal for the Petersburg Landfill, 16,300,000 cubic yards is the total fill volume of the entire landfill permitted air space. This is the estimated maximum inventory of CCR ever on-site over the active life of the CCR unit.

## 5 ESTIMATED SURFACE AREA OF FINAL COVER

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Approximately 33.8 acres of the 123.7 acre area inside the permitted solid waste boundary have been certified closed by IDEM. Therefore the largest remaining final cover area will not exceed 89.9 acres.

## 6 SCHEDULE FOR CLOSURE ACTIVITIES

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The estimated schedule for completing all activities necessary to satisfy the closure criteria in § 257.102 is outlined in the table below:

<b>Activity</b>	<b>Estimated Timeframe</b>
Surveying and Final Grading	Month 1
Cover Placement	Month 2 thru 4
Drainage Structure Installation	Month 5
Seeding	Month 6
Certification of Closure	Month 7

Final closure is expected to commence no later than 30 days after the date on which the Petersburg Landfill either:

- (i) Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or
- (ii) Removes the known final volume of CCR from the CCR unit for the purpose of beneficial use.

## 7 COMPLETION OF CLOSURE ACTIVITIES

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Completion of closure is expected to take place within 6 months after the start of closure, barring any necessary and allowed extensions under 40 C.F.R. § 257.102 (f)(2)(i).

Upon completion, the owner or operator of the Petersburg CCR Landfill unit will obtain a certification from a qualified Professional Engineer verifying that closure has been completed in accordance with the closure plan and the requirements of 40 C.F.R. § 257.102.



## 8 AMENDMENTS TO CLOSURE PLAN

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In accordance with 40 C.F.R § 257.102(b)(3), the owner or operator may amend the initial or any subsequent written closure plan developed pursuant to 40 C.F.R. § 257.102(b)(1) at any time.

The owner or operator will amend the written closure plan whenever:

- (A) There is a change in the operation of the CCR unit that would substantially affect the written closure plan in effect; or
- (B) Before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.

## 9 CERTIFICATIONS

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I, Donald L. Bryenton, being a registered Professional Engineer in the State of Indiana, do hereby certify to the best of my knowledge, information and belief, that the information contained in this written Closure Plan was developed in general accordance with the requirements of 40 C.F.R. § 257.102(b) and has been prepared in accordance with recognized and generally accepted good engineering practices.

AUTHORIZED REPRESENTATIVE:

Donald L. Bryenton

DATE:

11/22/16

ADDRESS:

ATC Group Services LLC  
7988 Centerpoint Drive, Suite 100  
Indianapolis, Indiana 46256

